United States Department of the Interior

FISH AND WILDLIFE SERVICE
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November 17, 2016

To: Interested Parties

From: Scott Voss, Fish Biologist, Red Bluff Fish and Wildlife Office

Subject: Biweekly report (November 4, 2016 - November 17, 2016)

Please find attached preliminary daily estimates of passage, 90% confidence intervals, and fork length ranges of unmarked juvenile salmonids sampled at Red Bluff Diversion Dam for the period November 4, 2016 through November 17, 2016. Race designation was assigned using length-at-date criteria.

This report also contains graphical displays of salmonid passage dating back to 2009 for comparison.

Please note that data contained in these reports is subject to revision as this data is preliminary and undergoing QA/QC procedures.

If you have any questions, please feel free to contact me at (530) 527-3043 ext 243.

Table 1.— Preliminary estimates of passage by brood-year (BY) and run for unmarked juvenile Chinook salmon and steelhead trout captured by rotary-screw traps at Red Bluff Diversion Dam (RK391), Sacramento River, CA, for the dates listed below. Results include estimated passage, peak river discharge volume, water temperature, turbidity, and fork length (mm) range in parentheses. A dash (-) indicates that sampling was not conducted on that date.

Date	Discharge volume (cfs) [1]	Water temperature (°C)	Water turbidity (NTU)	Estimated passage				
				BY16 Winter	BY16 Spring	BY15 Fall	BY16 Late-Fall	BY16 RBT
11/4/2016	7,580	12.2	4.1	1,558 (41 − 76)	400 (31 − 38)	0 (−)	333 (80 − 128)	62 (75 − 83)
11/5/2016	6,970	12.2	3.8	721 (40 − 74)	165 (31 − 36)	0 (−)	285 (109 − 137)	29 (77)
11/6/2016	6,550	12.7	3.8	124 (46 − 60)	124 (32 − 37)	0 (−)	154 (108 − 128)	0 (−)
11/7/2016	6,450	12.9	3.5	226 (39 − 69)	85 (31 − 36)	0 (−)	56 (118 − 134)	28 (90)
11/8/2016	6,410	13.1	3.7	57 (40 − 62)	283 (31 − 38)	0 (−)	85 (89 − 122)	0 (−)
11/9/2016	6,300	12.9	3.8	199 (42 − 73)	142 (31 − 35)	0 (−)	28 (143 − 143)	0 (−)
11/10/2016	6,240	12.6	4.1	287 (50 − 69)	288 (33 − 35)	0 (−)	130 (92 − 136)	0 (−)
11/11/2016	6,220	12.5	3.6	180 (54 − 70)	155 (30 − 37)	0 (−)	78 (94 − 128)	0 (−)
11/12/2016	6,160	12.8	4.2	112 (44 − 57)	190 (30 − 36)	0 (−)	0 (−)	28 (82)
11/13/2016	6,130	12.8	3.9	129 (44 − 68)	52 (34 − 36)	0 (−)	51 (84 − 113)	0 (−)
11/14/2016	6,110	12.7	3.9	221 (43 − 71)	110 (30 − 36)	0 (−)	83 (99 − 143)	28 (193)
11/15/2016	6,090	12.5	4.1	112 (44 − 62)	196 (29 − 35)	0 (−)	140 (94 − 130)	0 (−)
11/16/2016	6,110	11.8	3.9	103 (52 − 68)	155 (28 − 37)	0 (−)	77 (110 − 123)	0 (−)
11/17/2016	6,130	11.4	3.8	146 (50 − 80)	204 (28 − 33)	0 (−)	117 (117 − 133)	0 (−)
Biweekly Total [2]				**4,175**	**2,549**	**0**	**1,617**	**175**
Biweekly Lower 90% Confidence Interval				2,805	1,688	0	958	-20
Biweekly Upper 90% Confidence Interval				5,545	3,410	0	2,276	370
Brood Year Total				**484,841**	**31,344**	**25,721,500**	**58,975**	**27,787**
Brood year Lower 90% Confidence Interval				373,808	23,548	-1,450,797	34,958	9,651
Brood year Upper 90% Confidence Interval				595,875	39,140	52,893,796	82,992	45,922

[1] Peak daily discharge values do not account for diversions at RBDD and only represent peak flows registered at the Bend Bridge Gauging station (http://cdec2.water.ca.gov/cgi-progs/queryFx?bnd).

[2] Biweekly totals may be greater than the sum of the daily estimates presented in this table if sampling was not conducted on each day of the biweekly period. A dash (-) denotes those dates. To estimate daily passage for days that were not sampled, we impute missed sample days with the weekly mean value of days sampled within the week.

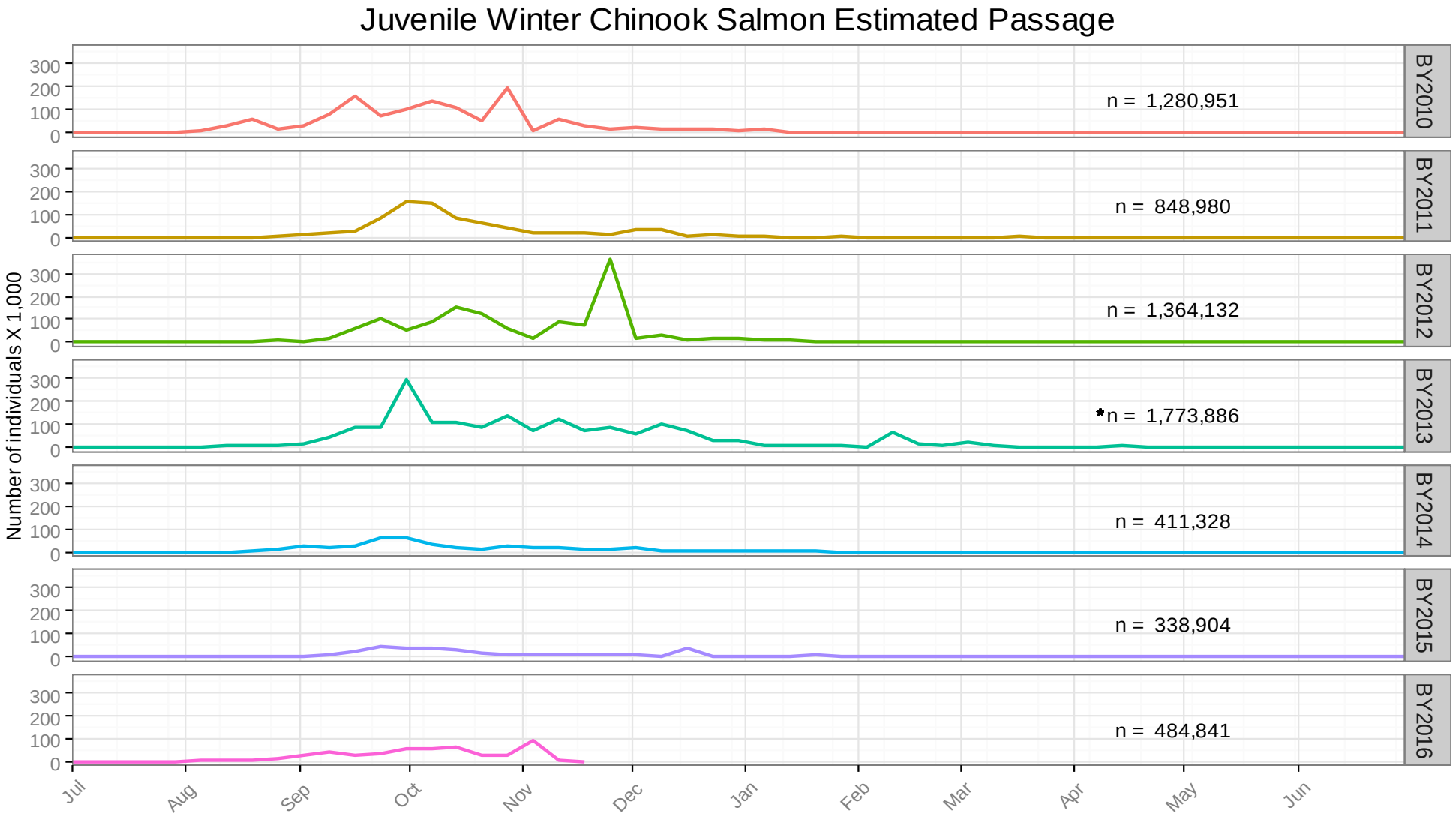

Figure 1. Weekly estimated passage of unmarked juvenile winter Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period July 1, 2010 to present .

*Winter run passage value interpolated using a monthly mean for the period October 1, 2013 - October 17, 2013 due to government shutdown .

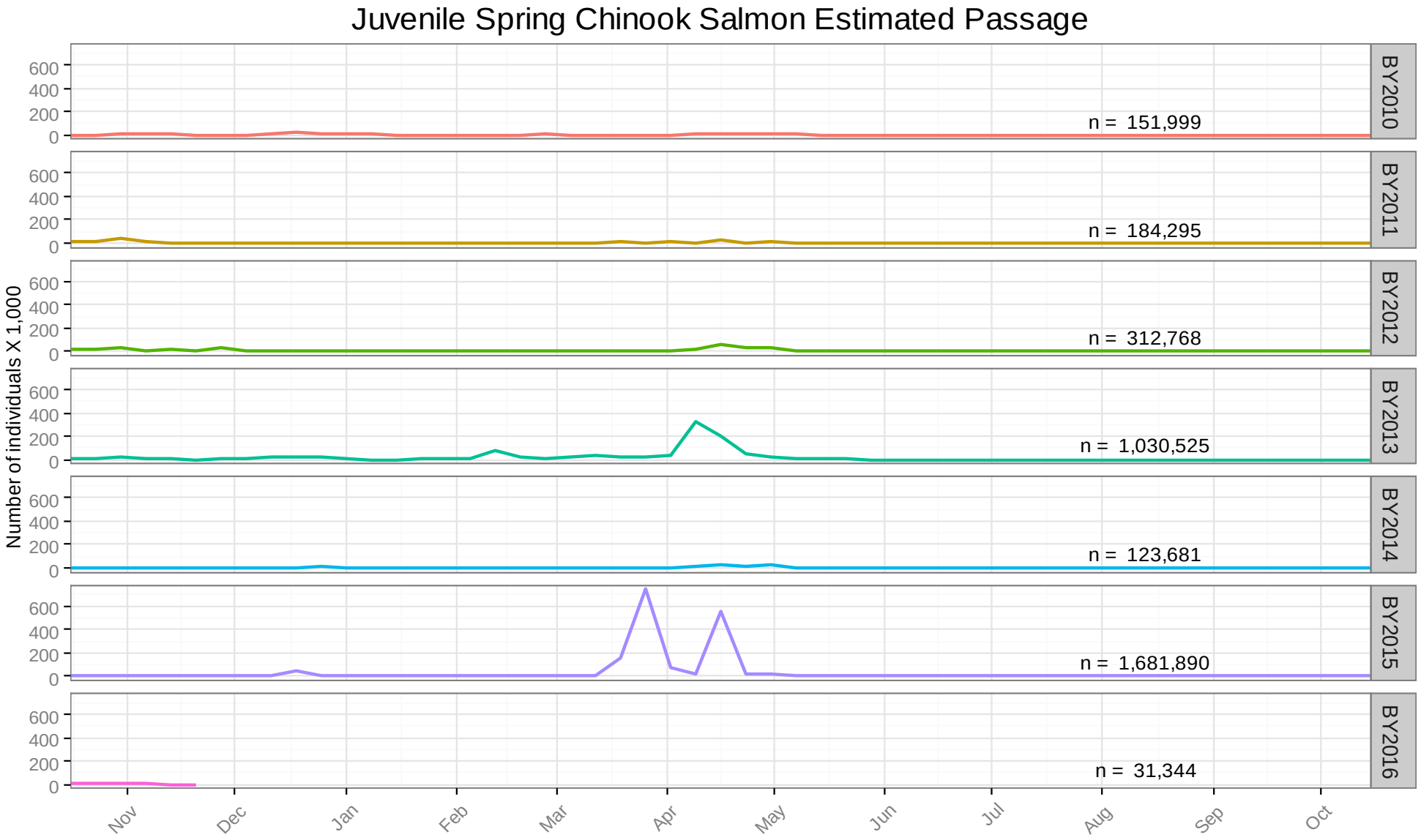

Figure 2. Weekly estimated passage of unmarked juvenile spring Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period October 16, 2010 to present .

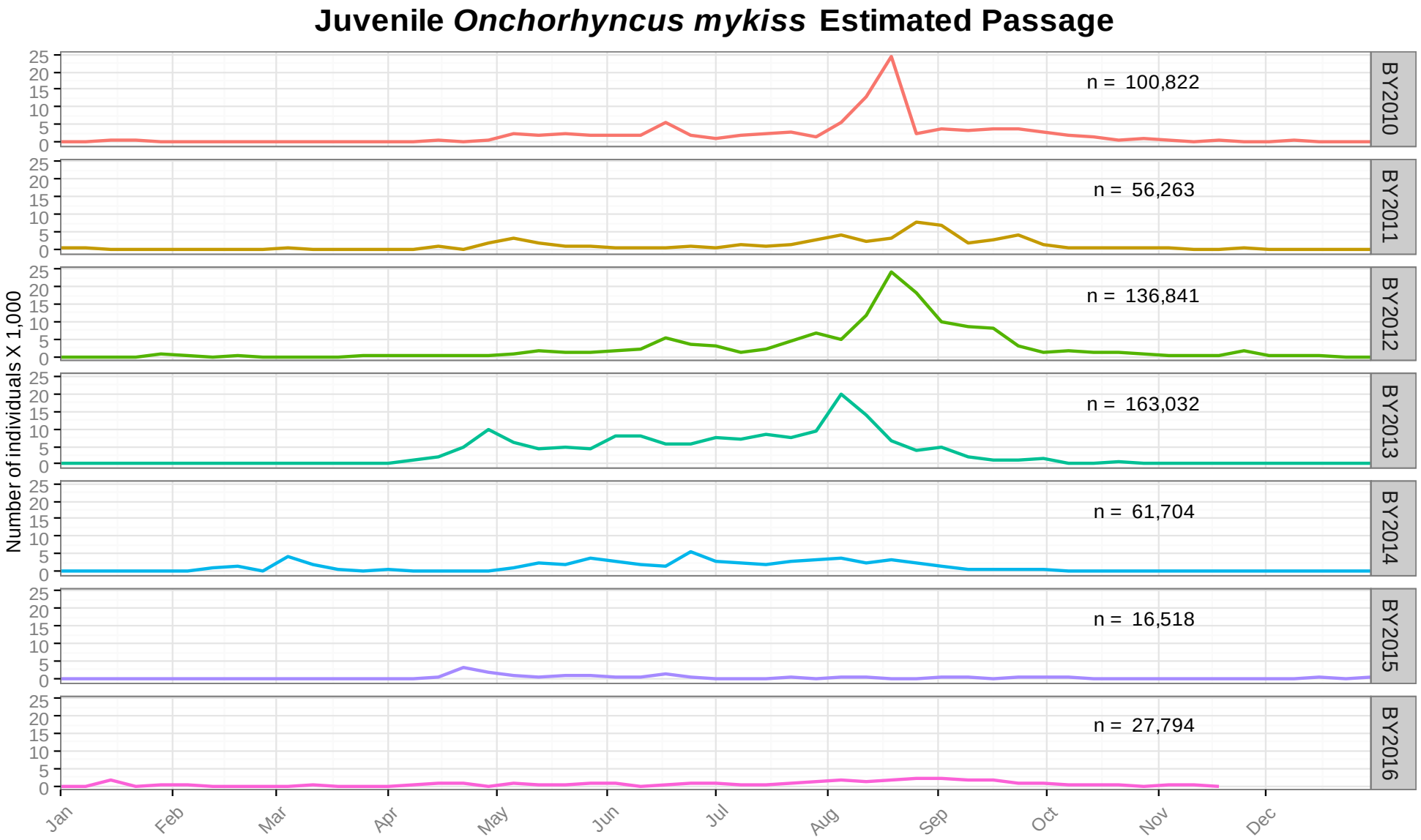

Figure 3. Weekly estimated passage of unmarked juvenile Rainbow/Steelhead trout at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period January 1, 2010 to present .

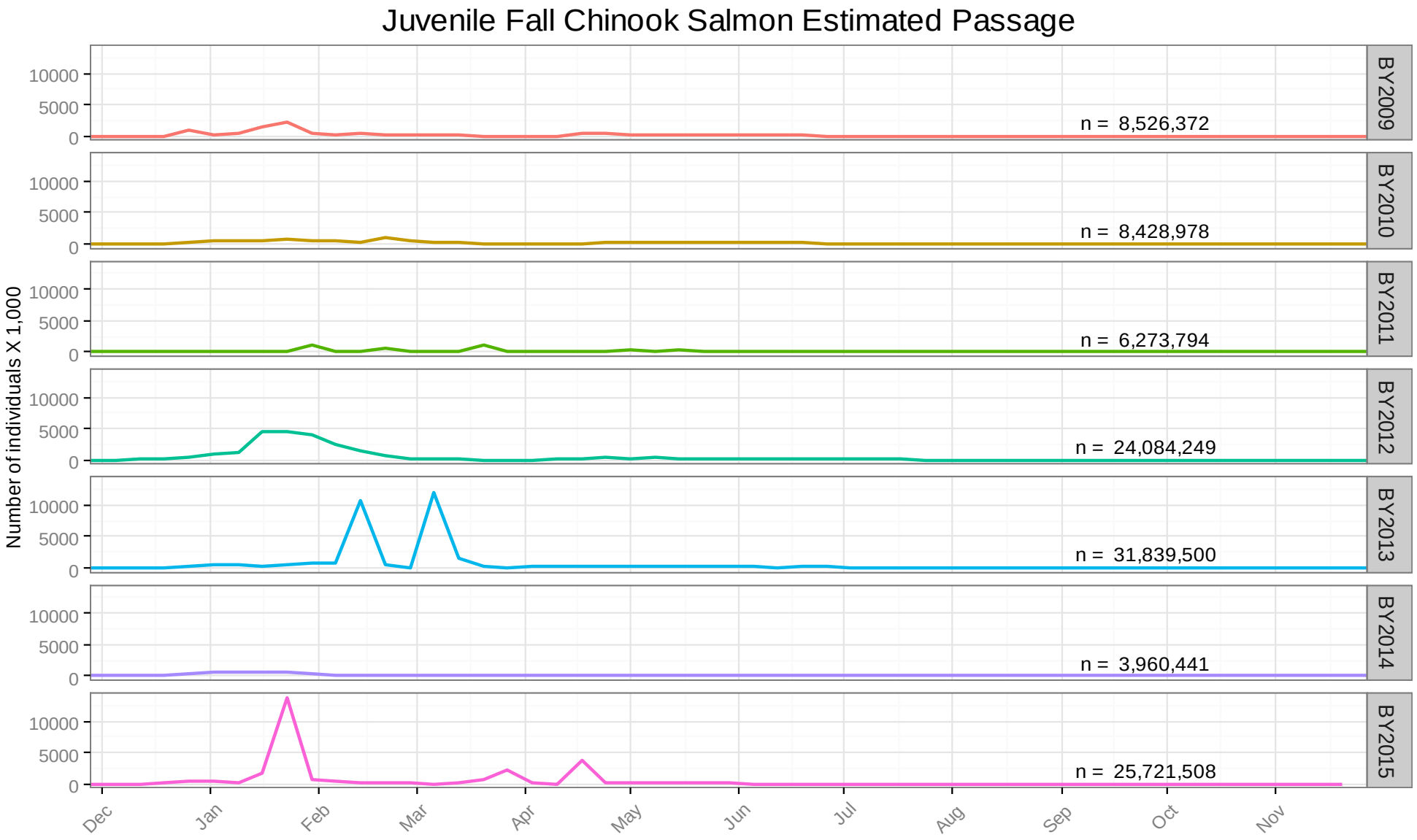

Figure 4. Weekly estimated passage of unmarked juvenile fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period December 1, 2009 to present .

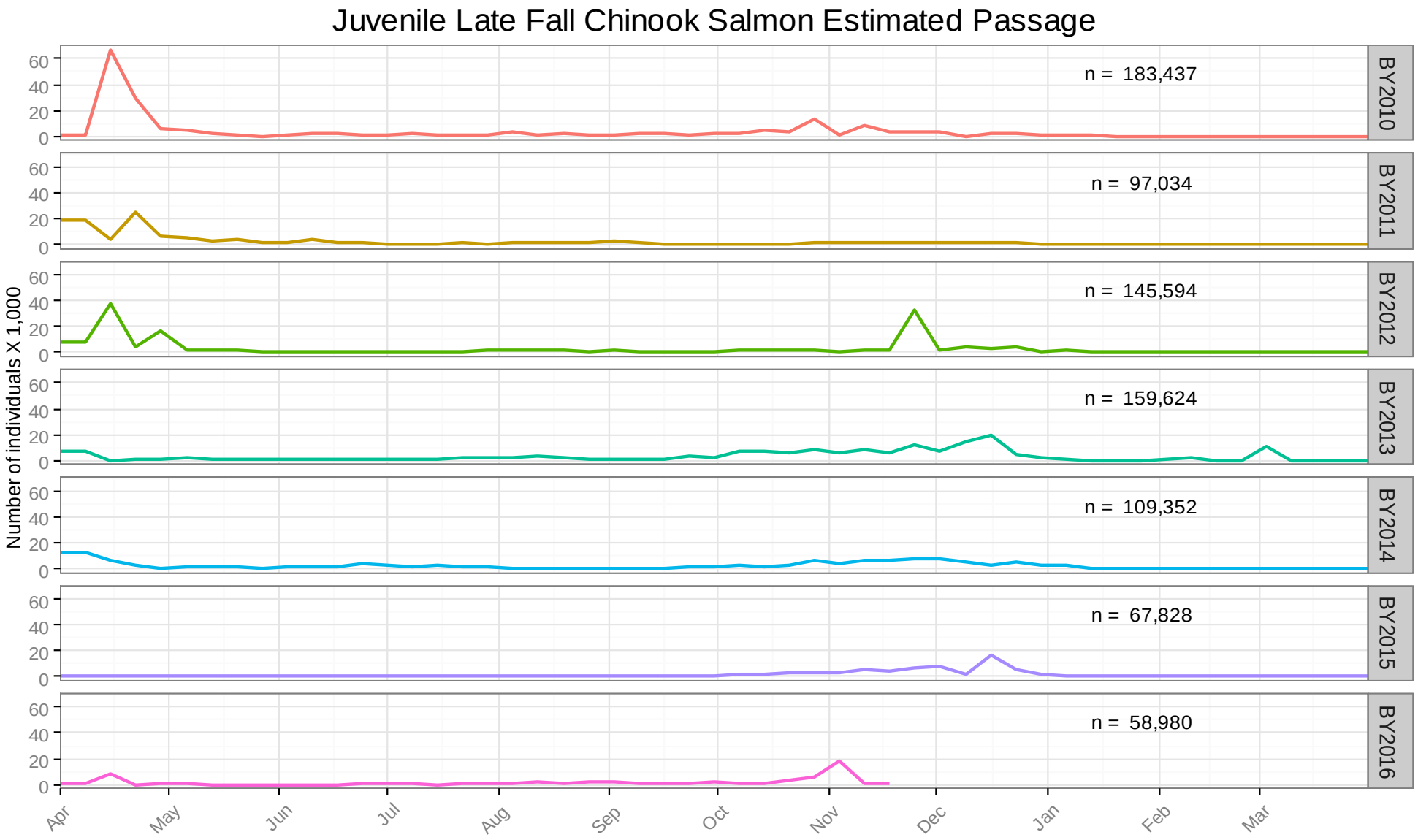

Figure 5. Weekly estimated passage of unmarked juvenile late fall Chinook salmon at Red Bluff Diversion Dam (RK391) by brood-year (BY). Fish were sampled using rotary-screw traps for the period April 1, 2010 to present .

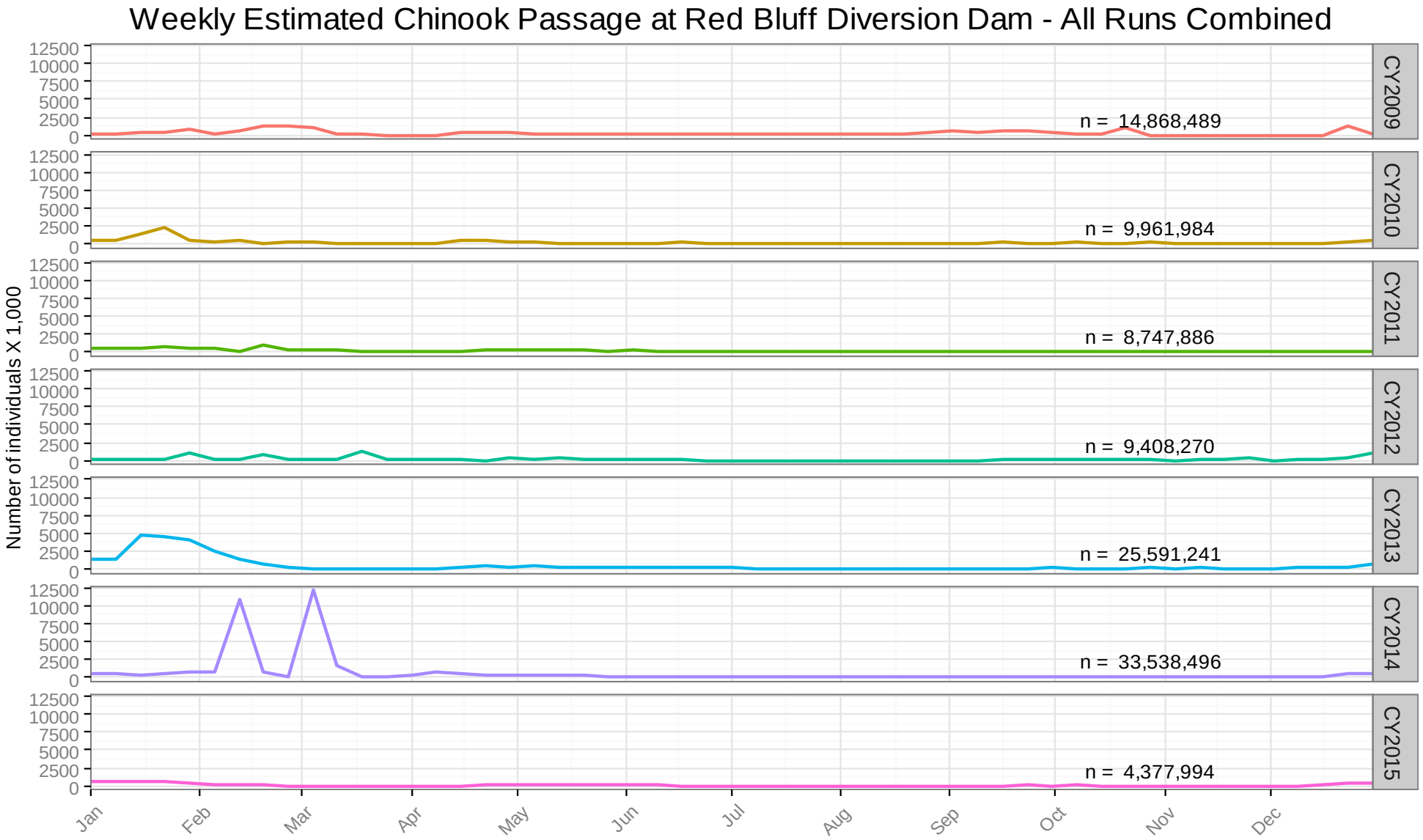

Figure 6. Weekly estimated passage of unmarked juvenile Chinook salmon at Red Bluff Diversion Dam (RK391) by calendar year. Fish were sampled using rotary-screw traps for the period January 1, 2009 to December 31, 2015